

Y10 MATHEMATICS



# COMPANY REPORT

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Marvin Li Y10 Peace

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# Dedicated to my Father

This iBook is dedicated to my father because my father is the only one who work in my family. He earn everyone living in my home for my mom sister and me. I hope that this iBook could help him earn someone even if he retire, he can still earn money from stocks, support my living before i get a job. In this term i started off my math with a pretty good marks that I had never hit before, I got a 6 out of 7 and i think this is good enough for me. Mr. Slosberg give me this score because I read the rubric will and show a good understanding in this topic. The following assessment on point slope i received full marks which pull my math grade up. That i get a 6. I think math will be useful in my life because math will be related to anything in the world. So i will try my best to get a good grade and foundation in math

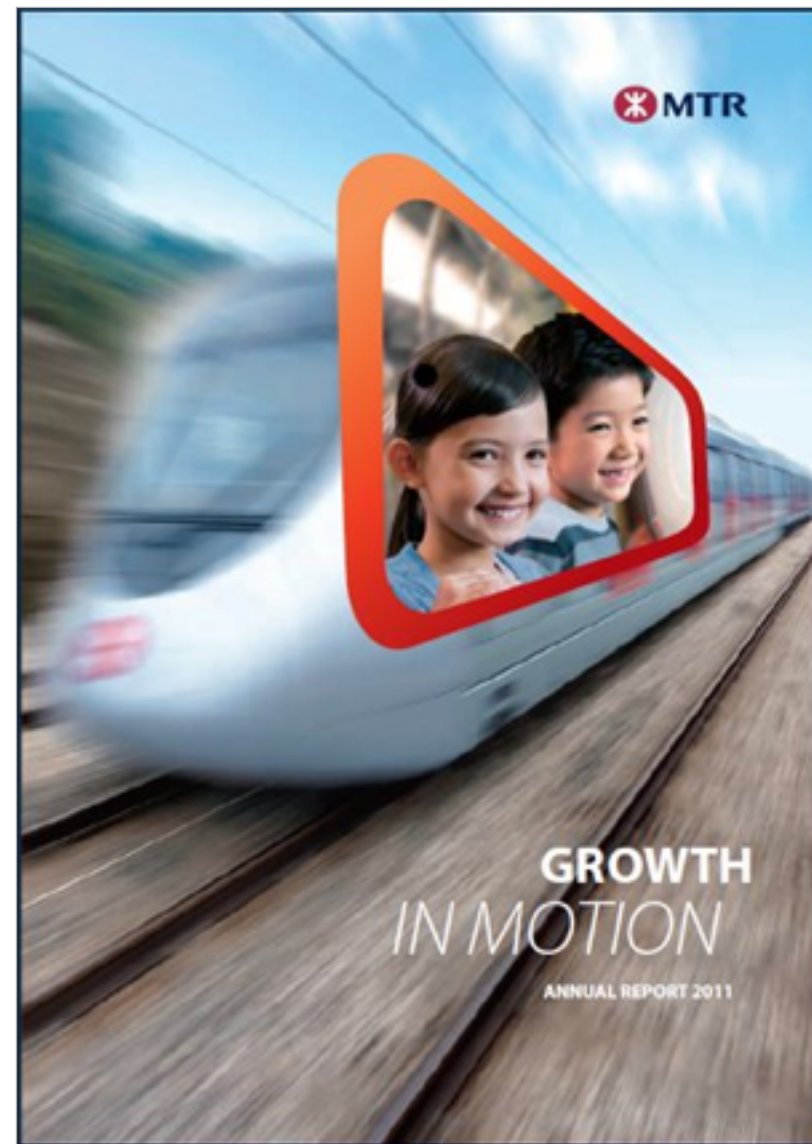
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# My company



Mass Transit Railway (MTR) is the rapid transit railway system in Hong Kong. Originally opened in 1979, the system now includes 211.6 km (131.5 mi) of rail with 155 stations, including 86 railway stations and 69 light rail stops. The MTR system is currently operated by MTR Corporation Limited (MTRCL).

The company that I will be researching for this unit is the Mass Transit Railway(MTR). I thought the MTR would be interesting because my father are interest on investing. Then i realized that MTR is a good company to invest in. Since their stock prices are very high and their total equity is increasing every year. I think this company would be a good company to invest on stock. For this project, I will be using the MTR annual report of 2011 with is the most update.



# CHAPTER 1

## DATA

For this chapter, I will be placing all the known data of MTR into this chapter. The data will include book value, total assets, total liabilities, total equity, total shares and the current price.

The aspects I need to investigate:

- Straight line equation
- Sequence
- Series
- Geometric Sequence
- Arithmetic Sequence
- Quadratic Equation



# MTR Information:

total assets: 186,228

total liabilities: 58,976

total equity (assets - liabilities): 127,252

total shares (equity/shares): 5,792M

NAV/Book Value: \$127,252

Current Price: \$30.75

my father has invested stocks into the MTR corporation which is one of few companies that i have background information of. I think i have a wide variety of knowledge because my father has lectured me about stocks at home. One of my other inspirations of choosing MTR incorporations was because it is a daily transportation as I live in Kowloon.



## CHAPTER 2



# CRITERION A: DIVIDENDS

# 1-2 finding the common ratio

“ Able to find the common difference/ common ratio “

YEAR	2007	2008	2009	2010	2011
Turnover	10690	17628	18797	29518	33423

Common difference:

$$2011-2010 = 6938$$

$$2010-2009 = 1169$$

$$2009-2008 = 10721$$

$$2008-2007 = 3905$$

Average Difference:

$$(3905+10721+1169+6938)/4$$

$$= 5688.25$$

$$= 5688 \text{ (4 s.f.)}$$

Common Ratio:

$$2011-2010=1.13$$

$$2010-2009=1.57$$

$$2009-2008=1.06$$

$$2008-2007=1.64$$

Average Ratio:

$$(1.13+1.57+1.06+1.64)/4$$

$$= 5.4/4$$

$$= 1.35$$

Arithmetic Progression:

$$T1=10690+(1-1)5688$$

$$=10690+0$$

$$=10690$$

$$T2=17628+(2-1)5688$$

$$=17628+5688$$

$$= 23316$$

$$T3=18797+(3-1)5688$$

$$=18797+11373$$

$$=56175$$

$$T4=29518+(4-1)5688$$

$$=29518+17064$$

$$=46582$$

$$T5=33423+(5-1)5688$$

$$=33423+22752$$

$$=56175$$

Geometric Progression:

YEAR	DIVIDEND OR EARNINGS(EPS)	DIFFERENCE(SUBTRACT)	RATIO(DIVIDE)
2007	2522	n/a	468.5
2008	2715	193	468.5
2009	2977	262	468.5
2010	3405	428	468.5
2011	4396	991	468.5
	Common	468.5	
	Sum 2013-2019	1459.5	2342.5



# 3-4 general term

“ Able to come up with the general term. “

$$y=mx+b$$

$$(2007-2008)$$

$$2577=m7+b$$

$$2715=m8+b$$

$$138=m1+b$$

$$138/1=m$$

$$138=m$$

$$m=138$$

$$(2009-2010)$$

$$2977=m9+b$$

$$3045=m10+b$$

$$68=m1+b$$

$$68/1=m$$

$$68=m$$

$$m=68$$

$$(2008-2009)$$

$$2715=m8+b$$

$$2977=m9+b$$

$$262=m1+b$$

$$262/1=m$$

$$262=m$$

$$m=262$$

$$(2010-2011)$$

$$3045=m10+b$$

$$4396=m11+b$$

$$1351=m1+b$$

$$1351/1=m$$

$$1351=m$$

$$m=1351$$

# 5-6 total dividends

“ Able to come up with the total dividends “

2007	2008	2009	2010	2011
2522	2715	2977	3405	4396

my company has a steady pace, there is a smooth increase in the companies dividends. The financial tsunami in 2009 did not effect the outcome because MTR incorporation is only a local limited company unlike others like HSBC banking company... MTR is also a daily transportation for Hong Kong so they would maintain a steady dividend.

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# 7-8 Unfamiliar

“Attempt to model the book values, no. of shares, profit or dividends with unfamiliar equations “

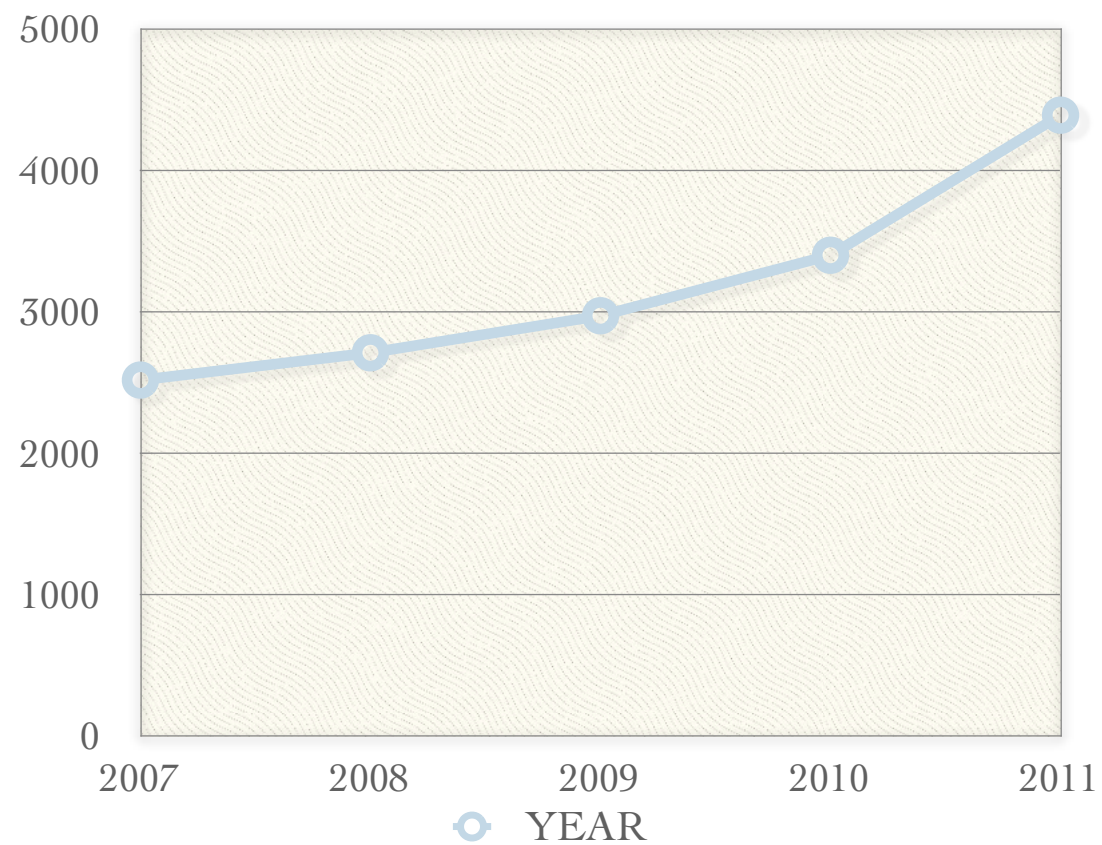
## CHAPTER 3



# CRITERION B: MY CHOICE

# Graph of Date 1-2

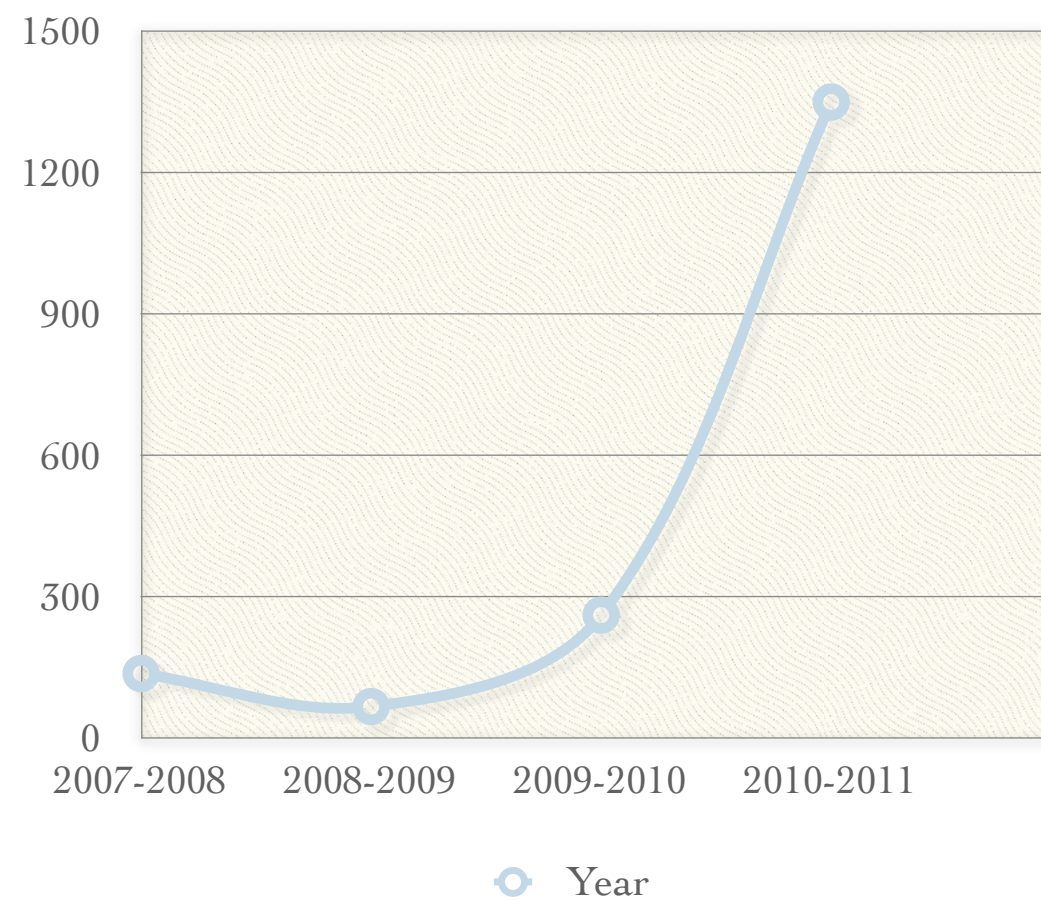
This is the total dividend from the year 2007-2011 in a line graph.  
The patten show they have a proper flow in the total dividend.



# Line of best fit

## 3-4

I have draw the line of the best first of the general term. it is from 2007-2011





# Prediction

## 5-6

I will be predicting the dividends without looking at the annual reports. I will be using the formula for the Nth term.

2007: 1-(1-0) 2522 = 2522

2008: 2-(2-0) 2715 = 10860

2009: 3-(3-0) 2977 = 26,793

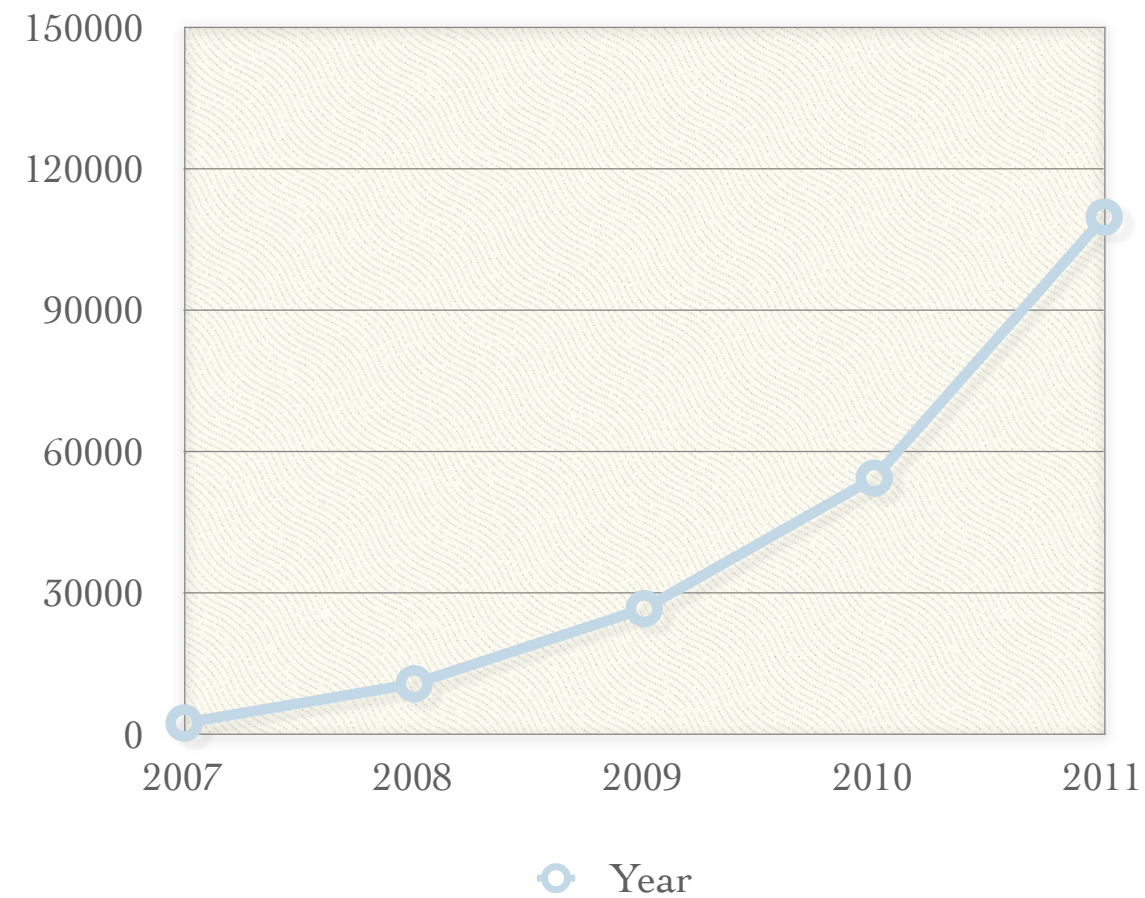
2010: 4-(4-0) 3405 = 54480

2011: 5-(5-0) 4396 = 109,900

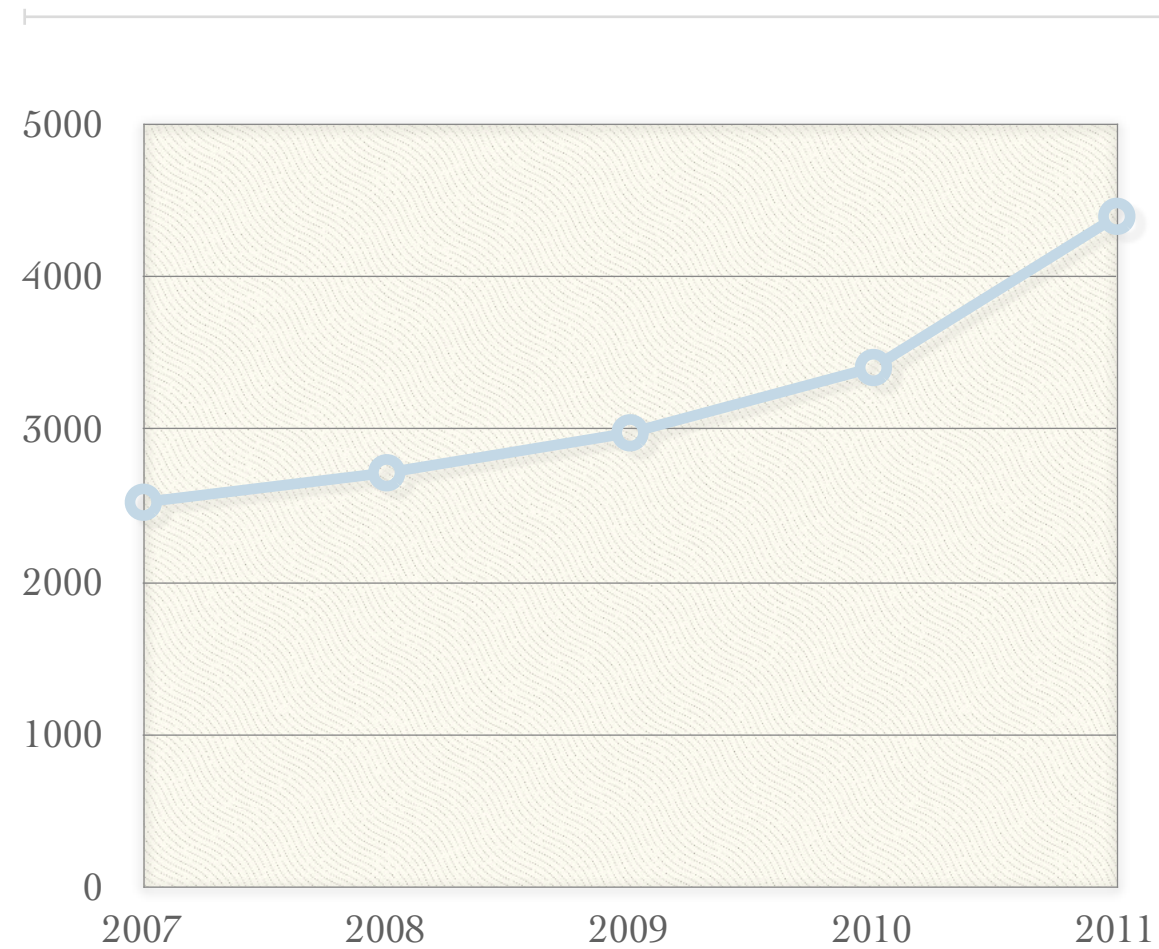
I think that these predictions are not accurate because i know that each year there will be some sort of a drop from inflation in the market. I think i could predict better if i looked online at the forecast.

○ YEAR

# My prediction VS actual data 7-8



My Prediction



## Actual Data

As you can see the difference from my predictions to the actual data is similar as it has a positive rise. The best fit line curves from the bottom left to the right top. The thing that I did wrong was multiplying it too many times I think be. The growth rate of my predictions is unrealistic.

## CHAPTER 4



# CRITERION D: ANALYSIS OF RESULTS

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# level 1-2: real world connections

“ Attempts to describe the findings related to the real life situations of the company.”

The use of predicting the dividends or value of the company in the future is for the purpose of a stock broker. If he/she would like to predict the future of which company they would like to invest in. If a person does not invest in the right companies, then people loose a lot of money. we would recommend investing in this company because it has a steady flow.

# Level 3-4: degree of Accuracy (percentage error)

“ Able to describe the findings related to the real life situations of the company.”

“ Attempted to generate data for the previous data, as to generate to the percentage error. “

$19/12 \times 100 =$



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# level 5-6: Improvements

“ Able to provide detail descriptions of the findings related to the company. “

“ Able to generate data for the previous data, as to generate to the percentage error table. “

“ Suggests improvement towards the existing method “

☒ Provide detailed explanations to whether it makes sense in real life.